

PATENT COOPERATION TREATY

09 JAN 2006
10/563921

From the
INTERNATIONAL SEARCHING AUTHORITY

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REC'D	06 JUL 2005
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/IB2004/051135

International filing date (day/month/year)
06.07.2004

Priority date (day/month/year)
10.07.2003

International Patent Classification (IPC) or both national classification and IPC
G06T11/00

Applicant
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1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/051135

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/051135

Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-10
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

1. Reference is made to the following documents:

- D1: BOONE J.M. ET AL.: "analysis and correction of imperfections in the image intensifier-TV-digitizer imaging chain" MEDICAL PHYSICS, vol. 18, no. 2, March 1999, pages 236-242
- D2: FAHRIG R ET AL: "Three-dimensional computed tomographic reconstruction using a C-arm mounted XR11: Correction of image intensifier distortion" MEDICAL PHYSICS, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, vol. 24, no. 7, July 1997, pages 1097-1106
- D3: WANG X ET AL: "ACCURATE AND EFFICIENT IMAGE INTENSIFIER DISTORTION CORRECTION ALGORITHM FOR VOLUME TOMOGRAPHIC ANGIOGRAPHY" OPTICAL ENGINEERING, SOC. OF PHOTO-OPTICAL INSTRUMENTATION ENGINEERS. BELLINGHAM, US, vol. 37, no. 3, 1 March 1998, pages 977-983

2. INDEPENDENT CLAIM 1

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not inventive in the sense of Article 33(3) PCT.
Document D1 discloses (the references in parentheses applying to this document):

An imaging system arranged to reduced an artifact in radiographic planar images comprising:

image artifact reduction means arranged to subsequently process said planar images with a first corrective image for eliminating a first source of structured noise in said images (section II, c.f. definition of " $I_1(x,y)$ ") and a second corrective image for

eliminating a second source of structured noise in said images (section II, c.f. definition of " $I_2(x,y)$ ").

The particular application of such a system to a three-dimensional reconstructed volume comprising a plurality of planar images is merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem of correcting the distortions due to an image intensifier (c.f. also document D2, section II and document D3, section 2).

3. INDEPENDENT CLAIMS 6, 7 AND 10

Independent claims 6,7 and 10 correspond in terms of apparatus, method and computer program to system claim 1 and are therefore also considered not inventive (Article 33(3) PCT).

4 DEPENDENT CLAIMS 2-5, 8, 9

Dependent claims 2-5, 8, 9 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT).

4.1 Claim 2

The feature of claim 2 wherein the first and second images comprise a first and second gain correction data is also disclosed in document D1 (section II).

4.2 Claims 3, 8 and 9

The feature of claims 3, 8 and 9 consisting in averaging a plurality of raw images of a calibration scan constitutes one of several straightforward possibilities from which the

skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to reduce the noise in the calibration data.

The additional features of claim 3, 8 and 9 are also disclosed in document D1 (section II).

4.3 Claim 4

The feature of claim 4 wherein the first and second sources of noise comprise a noise of an input and output screen of the image intensifier is also disclosed in document D1 (section II).

4.4 Claim 5

The feature of Claim 5 consisting in applying a drift correction constitutes one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to correct for a movement of a projection of the output screen during a rotational scan.

Re Item VIII.

1. CLAIMS 1 AND 7

Claims 1 and 7 do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claims attempt to define the subject-matter in terms of the result to be achieved, which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result.